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## Case Report: Breast Seroma Mimicking Breast Implants



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## ABSTRACT

**Introduction** Breast seroma may be caused by a variety of factors including lymphatic disruption, continuous inflammation and foreign bodies such as breast implants. In cases of breast implants associated seroma the diagnosis of Anaplastic Large Cell Lymphoma (ALCL) should be investigated.

Presentation of Case A 45-year-old Caucasian woman was referred with bilateral swelling of the breasts causing tension and pain. MRI showed accumulations compatible with bilateral silicone implants. Ultrasound-guided aspiration showed no malignancy or silicone. The patient had a history of both soy- and silicone implants. Three years prior her breast implants was removed due to capsule formation. To treat the pain and rule out potential malignancy we performed capsulectomy of only the right breast, on the wish of the patient. We found brown fluid, no breast implants and histology of fluid and tissue showed no malignancy.

**DISCUSSION:** Breast seroma usually develops weeks after surgery such as mastectomy or axillary lymph node dissection. This patient developed a seroma through months and years after her last surgery. In cases of late seroma malignancy should be ruled out. Diagnostic statements should not solely be based on radiology, but in conjunction with clinical findings.

**CONCLUSION:** We performed capsulectomy on a patient with breast seroma mimicking breast implants. We excluded the diagnosis of breast implant-associated ALCL. Radiology has limitations and should be considered in conjunction with the patient's statement and the clinical findings.

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## 1. Introduction

The pathophysiology of breast seroma is being discussed in the literature. Studies on mastectomy implicates that lymphatic disruption, ongoing inflammation, foreign bodies and movement of the axilla may lead to persistent exudate and fluid accumulation in dead spaces creating seroma [1]. Seroma is usually found surrounding implants and is seldom considered in cases with absence of breast implants or years after surgery. In cases of late formed seroma in absence of an implant one could suspect the presence of malignancy including Anaplastic Large Cell Lymphoma (ALCL).

The purpose of this case report is to present and discuss a patient who had breast seroma mimicking breast implants. This case report has been written in line with the SCARE criteria [2] and has been assigned a unique identification number: "Researchregistry2824".

## 2. Case

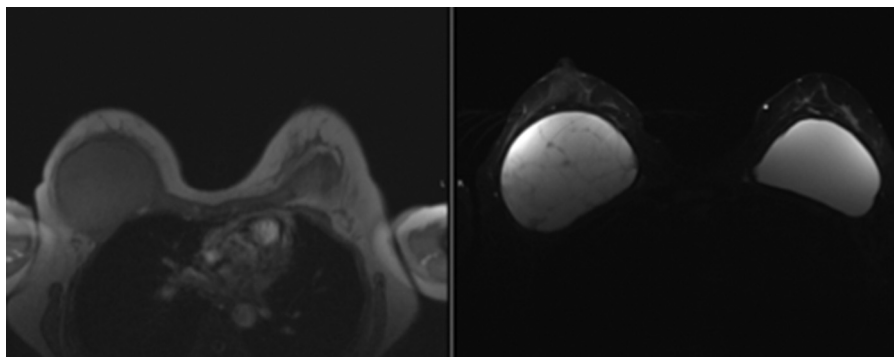
A 45-year-old Caucasian woman was referred by her general practitioner with bilateral increased swelling of her breasts for several months causing tension and pain especially on the right side of her thorax. The patient had a history of several breast implants. In 1998 she had Soy implants with complications of capsule formation and the implants were replaced with silicone implants in 2003. In 2013, three years prior to admission, she had undergone explantation of the bilateral breast implants due to capsule formation.

The patient was diagnosed in 2012 with large cell neuroendocrine tumor of the lung and had curative surgical treatment with lobectomy of the left superior lobe combined with chemotherapy. The patient had no recurrence of carcinoma.

Before admission several types of diagnostic scans were performed on suspicion of implants, tumor malignancy or seroma. In July 2016 an MRI showed "...two retro-pectoral accumulations with a thick surrounding capsule which have the morphology, appearance and position analogous to breast prostheses..." (Fig. 1A and B). The radiologist was not able to differentiate between breast implants and seroma and the MRI conclusion was "... compatible with bilateral silicone accumulations (breast prosthesis?)..."

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**Fig. 1.** A MRI scan in axial plane, T1 weighted. Seroma mimicking breast implants. B MRI scan in axial plane, T2 weighted. Seroma mimicking breast implants. The right breast presents with dark septas as a sign of fluid.



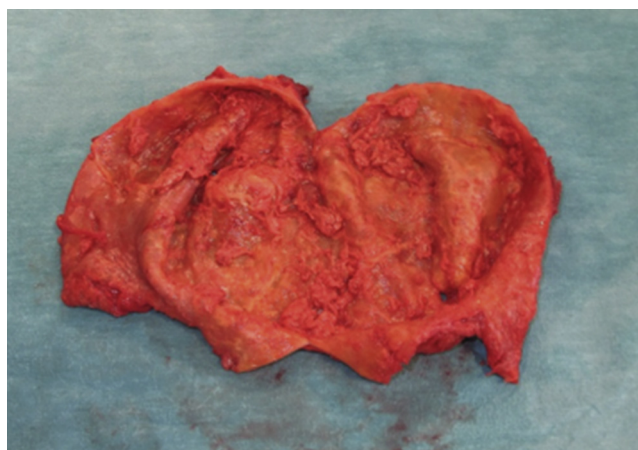
**Fig. 2.** Patient before surgery. Bilateral swelling of the breasts.

In August 2016 a mammography in conjunction with ultrasound concluded punctured bilateral implants. Fluid was aspirated by needle and showed no malignancy.

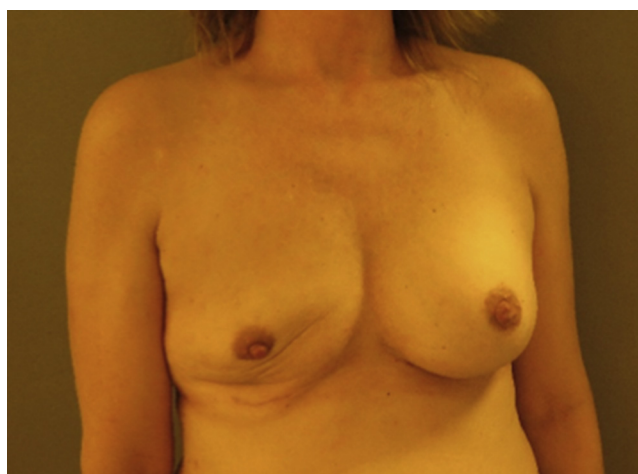
In September 2016 the patient was referred to our department for examination on suspicion of implants or seroma (Fig. 2). When examined especially the right breast was firm and tender with distended skin. It was unclear whether the tension was caused by an implant or fluid. The patient denied having new breast prostheses. No lymphadenopathy was found in the head and neck region, the axilla or inguinal region. Routine laboratory and vital values revealed no abnormalities. The patient had only intention of surgery on the right breast because of pain, and wanted no surgical procedures on her left breast even though it seemed an accumulation was in formation on the left side as well (Fig. 2). The expected diagnosis before surgery varied from new implants, to seroma formation or malignancy.

In general anesthesia we extracted around 300 ml of brown malodorous fluid containing debris of connective tissue and performed a capsulectomy on the right breast. The inside of the capsule showed a rough surface with necrotic appearance (Fig. 3). The seroma inside the capsule was assumed to be the reason for skin distention and pain. We found no pericapsular seroma, silicone implants or silicone debris. On suspicion of ALCL the capsule and fluid was sent to pathologic examination. Histology showed fibrosis and foreign body reaction. No malignancy or silicone was found. The cytological examination of the fluid showed no sign of bacterial growth.

At follow-up three months after discharge, the right breast was found with retraction due to scar tissue and signs of fluid reestablishment (Fig. 4). The patient was dissatisfied with the aesthetic result due to the retraction and lesser volume, and argued for a new augmentation of the right breast as no malignancy had been



**Fig. 3.** Thick capsule from the right breast, with a rough surface containing debris of connective tissue.



**Fig. 4.** At 3 months follow-up. Retraction and reestablishment of seroma in the right breast.

found. The seroma accumulation in the left breast was still present. We recommended a capsulectomy on the left side to exclude malignancy, but we offered no new augmentation on the right breast. The patient did not consent to this plan and had no intention of further follow-up.

### 3. Discussion

To our knowledge this case report is the first presenting a late breast seroma mimicking breast implants – without any breast implant present. The seroma was formed three years after explantation, which could imply another genesis such as carcinoma or Anaplastic Large Cell Lymphoma (ALCL).

Two reports have previously described a seroma forming in the fibrous capsule within a few months after explantation, but we find no reports on seroma mimicking breast implants several years after explantation [3,4].

Seroma is a clinical phenomenon that may appear as a complication to prosthetic breast reconstruction. In a meta-analysis investigating 2037 patients, 4.8% developed seroma following reconstruction with Human Acellular Dermal Matrix (HADM), while 3.5% developed seroma following reconstruction with sub-muscular prostheses [5].

Regularly seroma is a complication to sentinel node excision or axillary glandular dissection due to incisions of lymph vessels [6,7]. In this case no surgical procedure was performed in the axilla. Most surgeons perceive seroma as a common problem after mastectomy that will usually resolve within a few weeks [1]. However, this case of seroma seems to be occurring over months rather than weeks and present years after the patient's last breast surgery. A seroma is usually found surrounding implants, which is why this case differs from the ordinary.

The differential diagnosis of Anaplastic Large Cell Lymphoma (ALCL) is a rare kind of T-cell lymphoma that in 2011 was found associated with breast implants. ALCL is estimated to occur in 1 of 500,000 women annually in the United States. Approximately 0.3% per 100,000 women per year in the U.S. is diagnosed with ALCL in the breast [8]. In 2011 the FDA issued a warning statement about the association of ALCL and breast implants [9]. The typical clinical debut of breast implant-associated ALCL are late non-specific symptoms of pain and swelling of the breast. Only rarely the lymphoma is found as a palpable firm mass inside the breast or as axillary lymphadenopathy [10].

In our presented case, the patient had swelling and pain of the right breast and had a history of breast implants. The radiologist was uncertain whether the patient had implants or seroma, and therefore the potential diagnosis of breast implant-associated ALCL was raised.

According to the Department of Radiology, the accumulations in the breasts were compatible with bilateral silicone implants. Although MRI showed septas transversing through the process, which is unlikely in implants.

The conclusion was not certain due to the conflicting postulates between the patient and the radiological findings. This example illustrates the importance of a good clinical sense and the discrepancy between clinical presentation and radiological findings. As a Plastic Surgeon sound communication with your patient is of paramount importance for achievement of reliable patient satisfaction. However, with a seroma mimicking a breast implant on the radiologic findings, one would expect to find a breast implant.

### 4. Conclusion

We performed capsulectomy on a patient with breast seroma mimicking breast implants.

The patient challenged the team of plastic- and breast surgeons as well as the radiologists. Radiology as a diagnostic tool is highly useful, but has limitations and must be considered in conjunction with the clinical findings and the patient's statement. The diagnosis of breast implant-associated ALCL was excluded by cytology and

histology. Even though a suspicion of a breast implants reigns, it is in fact possible that it is a breast seroma.

### Disclosure/Ethics

We declare no conflicts of interest. The authors received no funding writing this case report, and all authors have approved the final article. No patients were harmed in any way. Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

### Consent

We confirm that written and signed consent has been obtained prior to submission from the patient.

### Author contribution

Amalie Sylvester-Hvid: Examination of the patient prior to surgery, operating assistant, writing the paper, data collection and interpretation

Magnus B. Avnstorp: Operating assistant, follow up, contribution to the writing process

Lene Wagenblast: Proof-reading, comments

Jørgen LockAndersen: Surgeon, follow-up, proof-reading, comments

Steen H. Matzen: Proof-reading, comments

### Please state any sources of funding for your research

All authors declare that we did not receive any funding for our research.

### Ethical approval

This is not considered a research study. This is a descriptive case report.

### Registration of research studies

This is not considered a human study. This is a descriptive case report

### Guarantor

All authors accept full responsibility for the work in this case report and control the decision to publish

### Please state any conflicts of interest

All authors declare no conflict of interests financially or personally.

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